



## Glumpy

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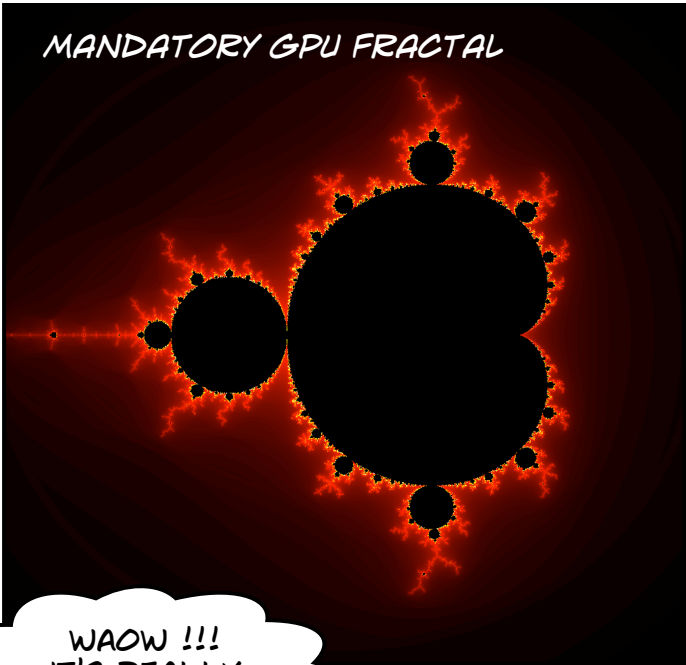
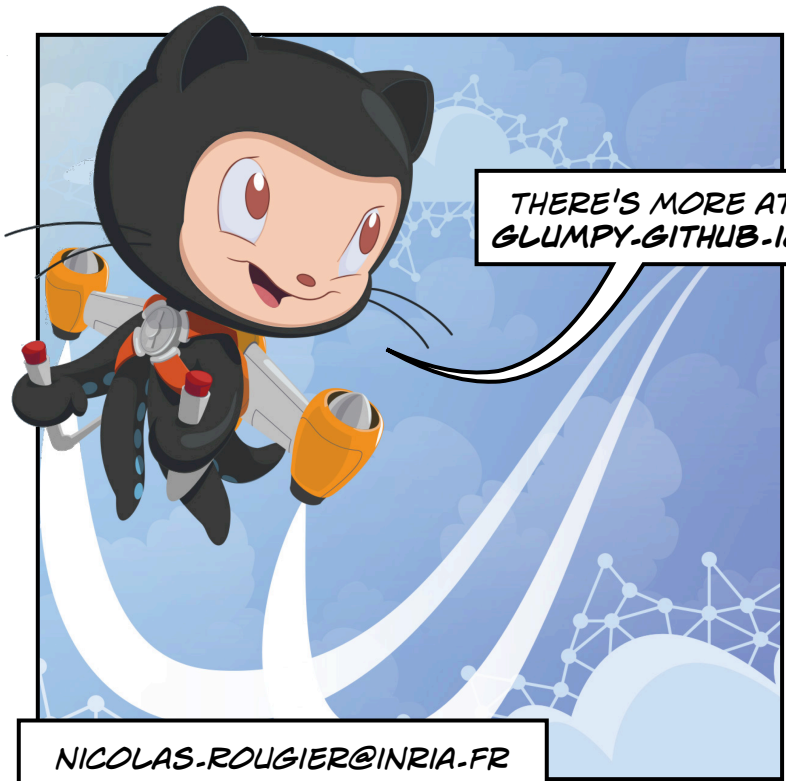




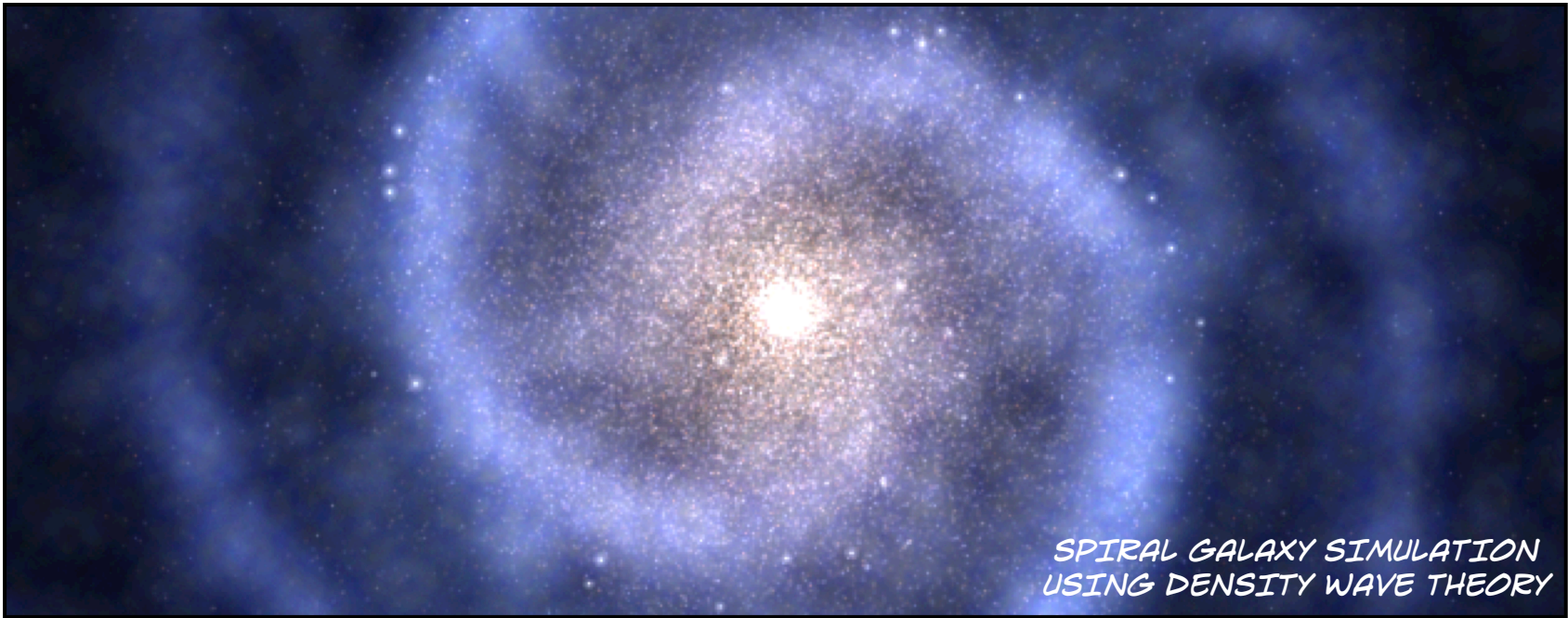
# GLUMPY

## OPENGL+NUMPY

FAST, SCALABLE AND BEAUTIFUL SCIENTIFIC VISUALIZATION



WAOH !!!  
IT'S REALLY  
SUPER FAST !

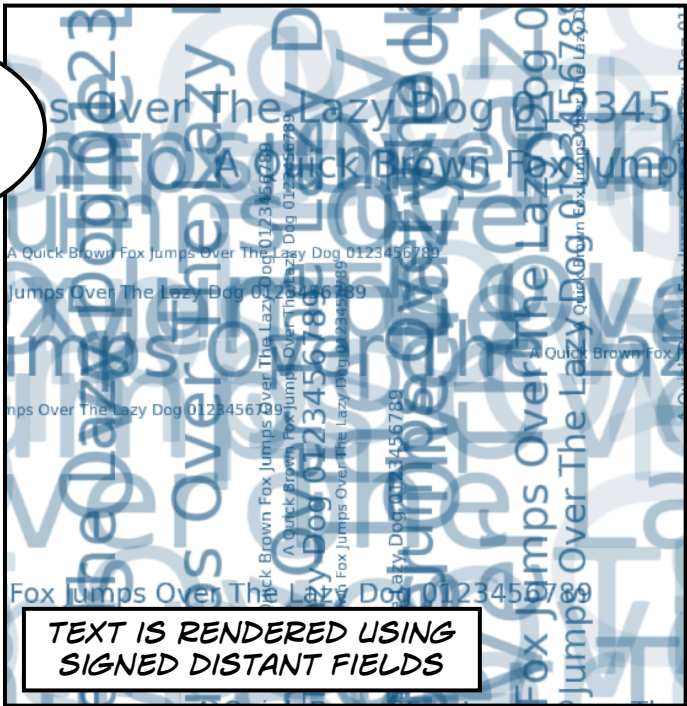


SPIRAL GALAXY SIMULATION  
USING DENSITY WAVE THEORY

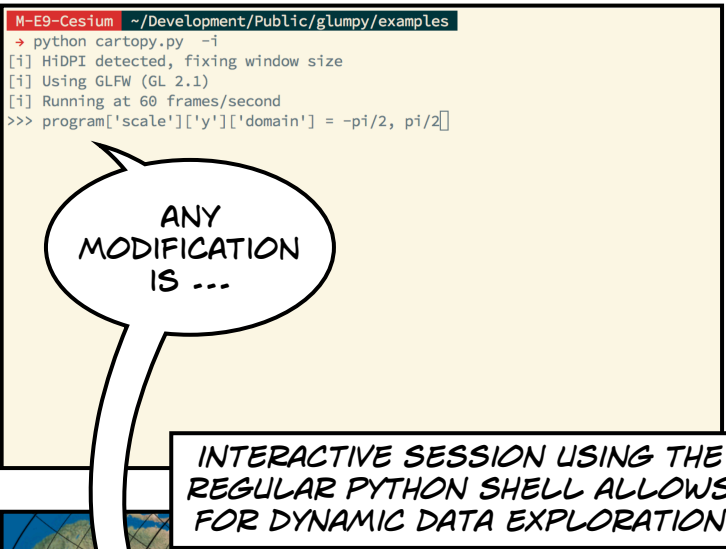


REALTIME FLUID  
SIMULATION ...

...USING GPU

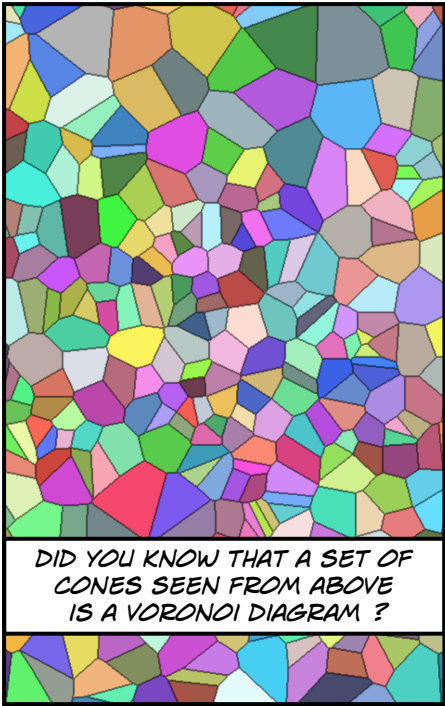


TEXT IS RENDERED USING  
SIGNED DISTANT FIELDS

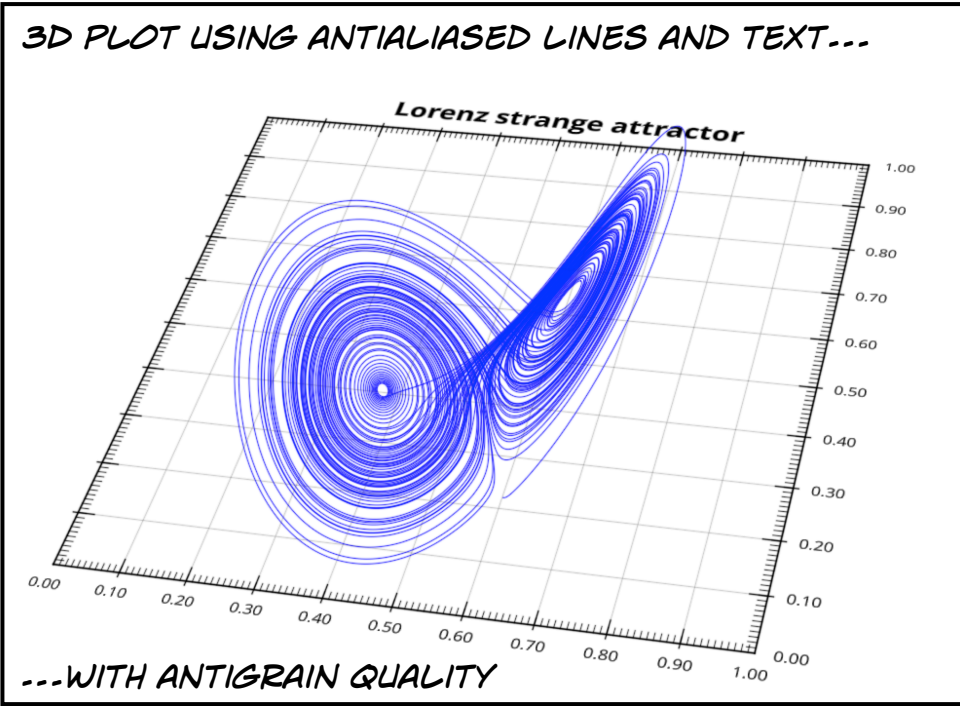


ANY  
MODIFICATION  
IS ...

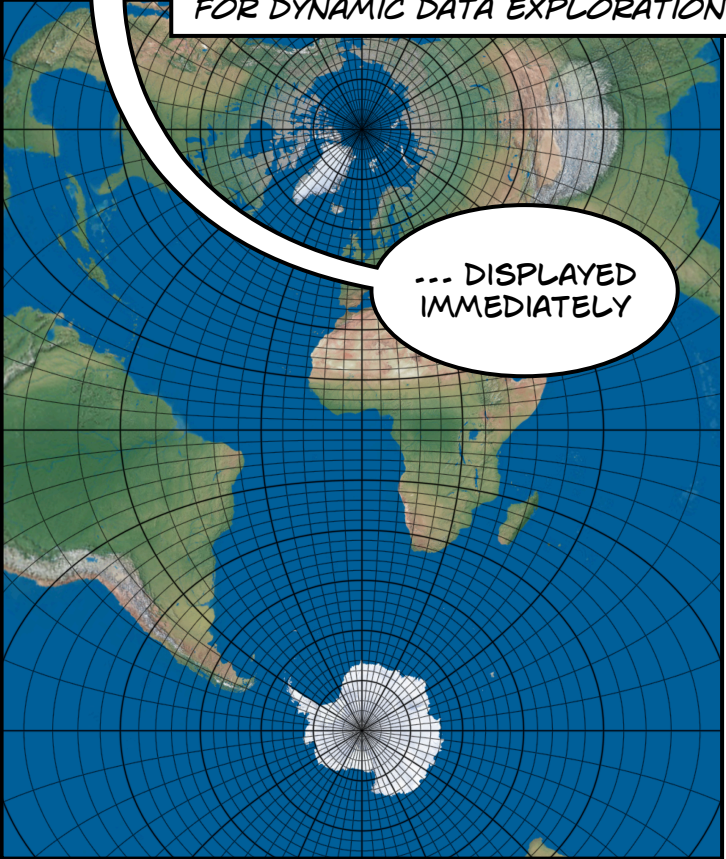
INTERACTIVE SESSION USING THE  
REGULAR PYTHON SHELL ALLOWS  
FOR DYNAMIC DATA EXPLORATION



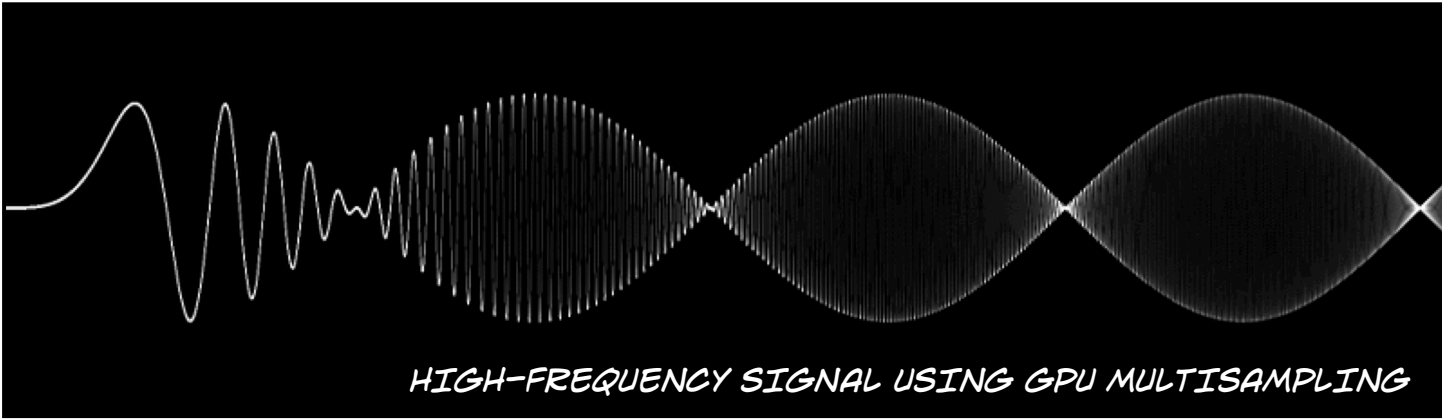
DID YOU KNOW THAT A SET OF  
CONES SEEN FROM ABOVE  
IS A VORONOI DIAGRAM ?



320 REALTIME SIGNALS  
(1,000 POINTS EACH)



... DISPLAYED  
IMMEDIATELY



HIGH-FREQUENCY SIGNAL USING GPU MULTISAMPLING

GLUMPY IS A PYTHON LIBRARY FOR SCIENTIFIC VISUALIZATION THAT IS BOTH FAST, SCALABLE AND BEAUTIFUL. GLUMPY OFFERS AN INTUITIVE INTERFACE BETWEEN NUMPY AND MODERN OPENGL.

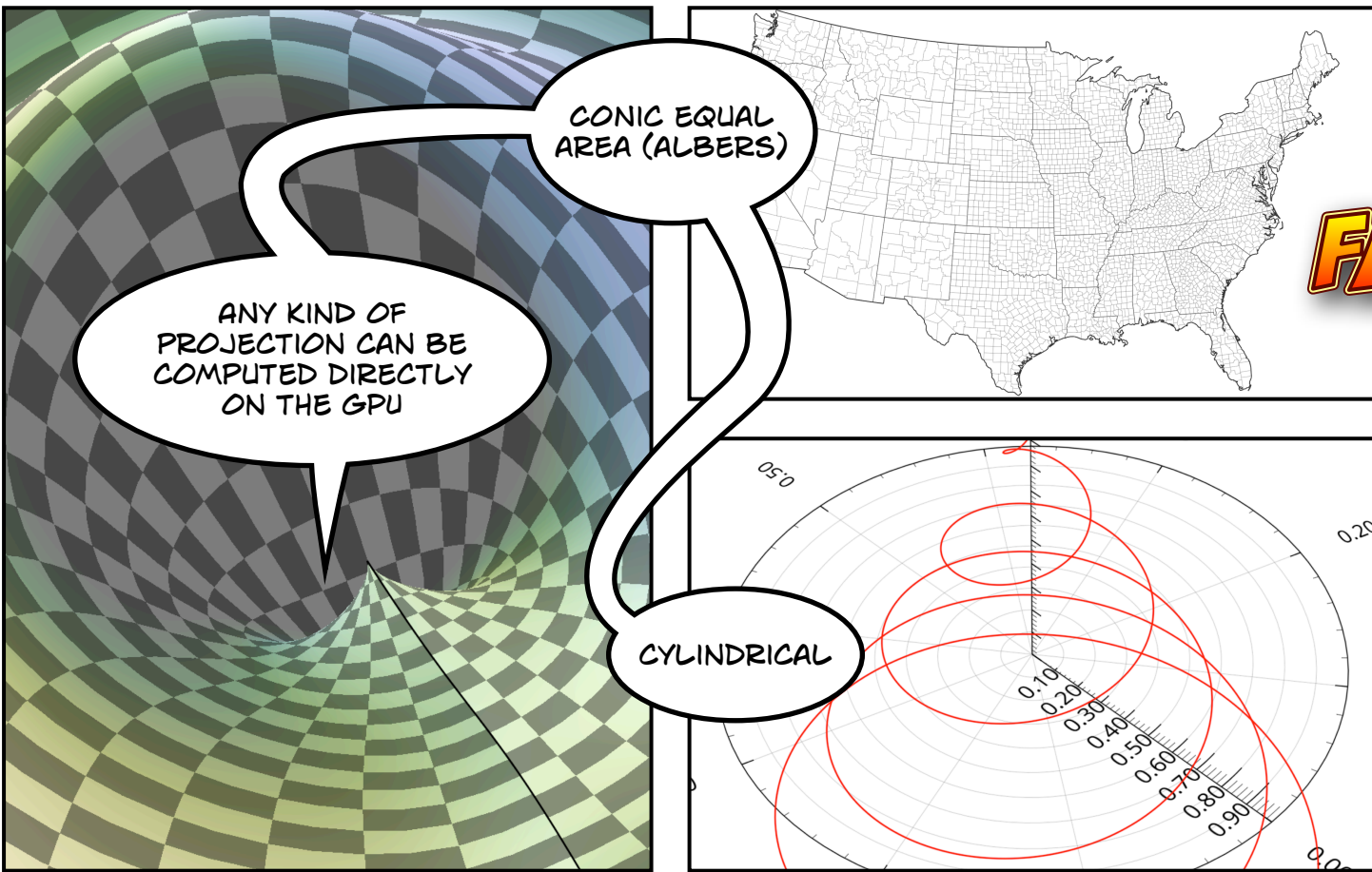
NUMPY ARRAYS ARE TRACKED AUTOMATICALLY SUCH THAT ANY CHANGE ON THE CPU IS REFLECTED AUTOMATICALLY ON THE GPU, MAKING THE INTEGRATION SEAMLESS.

GLUMPY PROVIDES MORE THAN 100 EXAMPLES SHOWING HOW TO ACHIEVE THIS OR THAT VISUALIZATION, SUCH AS ANTIALIASING, TEXT RENDERING, ISOLINES COMPUTATION, IMAGE FILTERING, CARTOGRAPHIC PROJECTION, REALTIME SIGNALS, FLUID SIMULATION, SVG RENDERING, ETC.



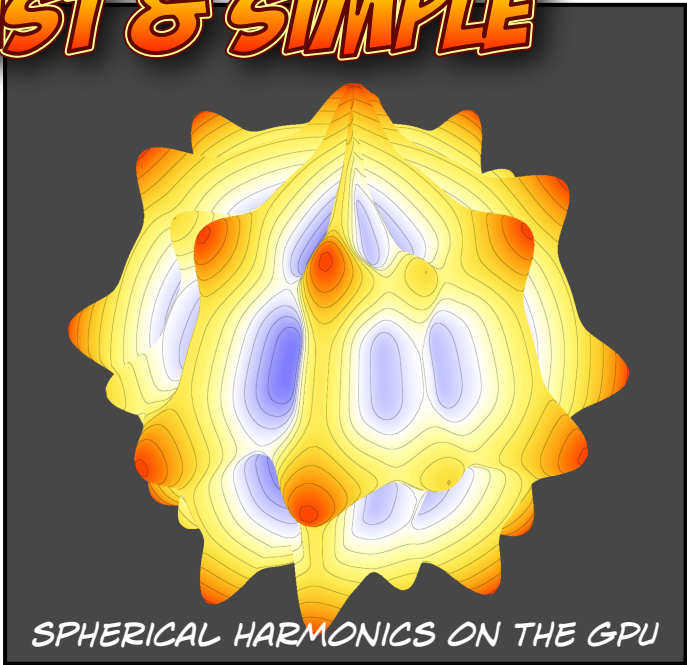
GLUMPY IS A LABORATORY FOR EXPERIMENTING IDEAS TO BE  
INTEGRATED INTO THE VISPY PROJECT THAT LIVES AT VISPY.ORG,  
BUT GLUMPY CAN ALSO BE USED AS A STANDALONE LIBRARY.

FAST & SIMPLE



CONIC EQUAL  
AREA (ALBERS)

CYLINDRICAL



SPHERICAL HARMONICS ON THE GPU

